Story by Kathy Wythe

# TNRIS serves as source for digital geographic information

Want to know if your home is in the 100-year flood plain or see what your city looked like from the air during the 1920s? Check out the Texas Natural Resources Information System (TNRIS) Web site at *http://www.tnris.state.tx.us/* for the answers.

TNRIS, a unit of the Texas Water Development Board (TWDB), provides a centralized location for digital geographic information on natural resources, including water, socioeconomic information, transportation, political boundaries, and other related information. The entity provides a valuable service to Texans, saving money, fostering use of valuable information, and saving agency personnel time.

Established by the Texas Legislature in 1968 as the Texas Water-Oriented Data Bank, TNRIS was created to gather and coordinate water information after the severe droughts in the 1950s to better understand and monitor the state's water resources, said James Scott, TNRIS director.

Today, TNRIS collects much more than water information.

"Anyone who wants any information about Texas digital geography can come to the TNRIS Web site," Scott said.

TNRIS has a historical collection of aerial photographs from different state and federal agencies that go back to the 1920s. "TNRIS is the state archive or clearinghouse for map data and aerial photos," he said.

The historical images can be accessed to see how land was previously used or what the conditions were on the ground. "[The old aerial photos] continue to provide value to the state as a critical resource to make assessment of what the condition of the environment is," he said.

TNRIS' Strategic Mapping Program, or StratMap, was started in 1997 with the passage of Senate Bill 1 that established Texas' state water planning process. One of the mapping program's first tasks was converting U.S. Geological Survey paper maps into digital maps. These digital maps can be overlaid with data sets such as digital imagery, census information, watershed boundaries and other hydrological information, political boundaries, and transportation. TNRIS is continually updating these maps with help from other federal and state agencies, Scott said.

Common uses of StratMap include hydrologic modeling, vegetation analysis, transportation routing, land use planning and management, environmental assessment and monitoring, crime analysis, homeland security evaluations, economic development assessment and planning, and business applications.

"These types of analytical tools really help people in decision-making and executive and leadership positions," Scott said. "Instead of having to go out and look for the raw data to build maps themselves for large-scale projects or land development, they can get most of what they need and start using the same common reference."

As part of the StratMap program, a new statewide aerial map was created through collaboration with the U.S. Department of Agriculture's Farm Services Agency, several state agencies, and technical partners. This new aerial map has one-half-meter resolution, increased from the previous map's one-meter resolution.

One of TNRIS' newer responsibilities is creating the Digital Flood Insurance Rate Maps for the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program. Established in 1968 by Congress, the National Flood Insurance Program enables property owners in participating communities to purchase insurance as a protection against flood losses.

"The state has recognized that Texas has one of the largest frequencies of disasters," Scott said, and wanted the TWDB to play a stronger role in the base map development process.

Using information collected from StratMap, digital flood hazard maps document 100-year flood zones. Scott said TNRIS will continually refine the maps because flood zones change as land use changes.

"The maps are the critical baseline feature used for reference from a legal standpoint of whether to purchase flood insurance if one's house is in the flood plain," he said.

Through the years, the TNRIS staff has adopted the newest technologies, from collecting historical aerial photos to using satellite imaging from the Landsat program launched in the 1970s. From its inception, TNRIS has been a leader in using geographic information systems (GIS) technology to document and monitor the state's geographic data, Scott said.

"There is quite a legacy here at TNRIS for being in the forefront of developing geographic information technology over the last three or four decades," he said.

Scott said TNRIS is evaluating different options for making maps and data more easily accessible on the Internet.

"We want to make our information accessible to all Texans."